

Role of the Thailand Tapioca Development Institute in the control of the tapioca mealy bugs

Being members of the Board of the Thailand Tapioca Development Institute Foundation, the presidents of the four tapioca industry associations have provided strong support to the TTDI in its efforts to mitigate the problems arising out of the devastation caused by the spread of the tapioca mealy bugs. They, in fact, give solid backing to proposals made by the President of the TTDI Foundation on the eradication of the pink mealy bugs. The Board itself is under chairmanship of Mr Sukit Wanglee, a well-respected veteran of the tapioca industry. In fact, it was Mr Sukit who had long warned the industry and the public about the real threats of the mealy bugs, if nothing was done to stop them.

As part of the annual event, the joint field survey team on tapioca production and trade, comprising representatives of the four tapioca industry associations and experts from the government sector and the TTDI, conducted a series of field trips around the country and confirmed two years ago that there was an onslaught by the mealy bugs for the first time in the Thai tapioca history. The trips are held several times annually for over a decade with the aim of getting first-hand knowledge on tapioca production and updating those involved in tapioca trade in rural areas about the current international trade situation. The survey was partly funded by the TTDI Foundation.

The President of the TTDI Foundation, Mr Charae Chutharattanakul, in concurrence with the Board of Directors has in 2009 organized a series of seminars and meetings, involving the private sector, government agencies, universities, experts and key farmers, to discuss ways to contain and eradicate the mealy bugs. This culminated in February, 2010, when a stakeholders' seminar was held at the Foundation headquarters in Bangkok to solve the industry woes. This led to a meeting with the executives of the Ministry of Agriculture and Cooperatives, and later with the Prime Minister in securing additional government assistance for the tapioca farmers. A national committee was subsequently appointed and a budget request of over Baht 1 billion was submitted to the cabinet.

The TTDI at Huay Bong has also provided trainings of farmers on the tapioca stake treatment and spraying of the tapioca fields. Biological control of the mealy bugs was part of the course curriculum. In particular, it has developed a close relationship with the Huay Bong local administrative organization and the farmers around the TTDI centre there.

In line with this, a strong partnership programme with the Department of Agricultural Extension was developed in view of creating a mealy bug-safe zone for *Tambon* Huay Bong. Having informed the farmers of the threats of the pink mealy bugs, a campaign was launched to soak tapioca cuttings with thiamethoxam and to spray with it, where necessary, in the affected fields. The campaign was part of the national programme to eradicate the mealy bugs. Later it was modified to accommodate the more effective biological control by the *Anagyrus lopezi* parasitoids imported from Benin through the courtesy of the International Institute of Tropical Agriculture (IITA).

The TTDI also facilitated visits by experts of the Department of Agriculture, the International Centre for Tropical Agriculture (CIAT), as well as international organizations like the Food and Agriculture Organization (FAO). This paved the way for a key joint project between the TTDI and the Department of Agriculture to multiply the *Anagyrus lopezi* wasps to control the mealy bugs in January of this year. The TTDI provided buildings and equipment, while the DOA assigned a senior expert to head the project and delivered technical guidance to the project staff, principally employed by the TTDI. The mass-rearing facilities, backed by field research, at the TTDI Huay Bong are deemed to be only one of its kind for *Anagyrus lopezi* and the largest one the world over.

The TTDI was also directly involved in the production of the distribution pamphlets, flyers, posters, radio programmes and CDs on the eradication and control of the mealy bugs. These materials were primarily aimed at the mass media to arouse public awareness, particularly the tapioca farmers. Since the spread of the mealy bugs and the subsequent introduction of the *A .lopezi* were new to Thailand, they also drew strong attention from the government circles and the academia.